(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International Publication Date 23 June 2005 (23.06.2005)

PCT

(10) International Publication Number WO 2005/057501 A1

(51) International Patent Classification7:

G06T 15/00

(21) International Application Number:

PCT/IB2004/052659

(22) International Filing Date: 3 December 2004 (03.12.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

03104608.9

9 December 2003 (09.12.2003)

(71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): BARENBRUG, Bart, G., B. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). VAN GEEST, Bartolomeus, W., D. [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). MEINDS, Kornelis [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agents: DE JONG, Durk, J. et al.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,

MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

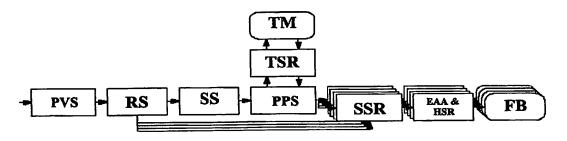
as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

with international search report

[Continued on next page]

(54) Title: COMPUTER GRAPHICS PROCESSOR AND METHOD FOR RENDERING 3-D SCENES ON A 3-D IMAGE DIS-PLAY SCREEN



(57) Abstract: A computer graphics processor having a renderer for rendering N views of 3D scenes is provided. Said renderer comprising a rasterizer SSR for transversing a surface grid over a surface of primitives of said 3D scenes for all N views. Furthermore, said renderer comprises a shader means PPS for determining a color of the output of the rasteriser SS and forwarding a shaded color sample along with its screen coordinates, and N screen space resamplers SSR each for resampling the shaded color sample determined by said shader means PPS according to one of the N views. This is much more efficient, because the surface traversal, texture fetching and shading computations are only performed once for the N different views. The resulting shaded colors are reused for all views. Additionally, the ability to traverse any grid over the surface of the primitive provides more rendering freedom.

5/057501 A1



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.